| Title | Inundation Maps for NSW Inland Floodplain Wetlands 2019-2021 |
|------------------------|--|
| Abstract | Under the NSW DPIE-EES Environmental Water Management Program the distribution and extent of inundation is monitored in large inland floodplain wetland assets which are targeted for environmental flow delivery and located in the NSW portion of the Murray-Darling Basin: Gwydir wetlands, Lowbidgee floodplain, Lower Lachlan wetlands, Macquarie Marshes, and Barmah-Millewa Forest. Inundation maps are derived from image observations sourced from the satellite data sources of Landsat (30m pixel) and Sentinel-2 (10m pixel) for the period July 2014-June 2019. Image observations are automatically downloaded by NSW DPIE from the USGS (Unites State Geological Survey's Earth Explorer website (http://earthexplorer.usgs.gov) and the Copernicus Sentinel Open Access Hub (https://scihub.copernicus.eu/dhus/#/home) as orthorectified images. NSW DPIE process these images to standardised surface reflectance (Flood et al. 2013). Image observations with high cloud coverage (>50%) are not considered because they cannot be processed. The inundation mapping procedure is a modified version of Thomas et. al (2015) which is a method to map inundation in vegetated floodplain wetlands using an integrated spectral response to water and vigorous vegetation. From each satellite image observation NSW DPIE-EES automatically generates a water index (Fisher et al. 2016) and the NDVI vegetation index. These indices are used to allocate inundated pixels to classes of open water, mixed water and vegetation, and dense vegetation cover that was inundated (Thomas et al. 2015). A process of pixel recoding is conducted to produce each inundation map. First all inundation classes are merged and allocated a value of one (1) whilst all other pixels are allocated a value of zero (0). Second, ancillary data is then used to identify irrigation infrastructure to do two things: locate inundated pixels within off-river storages (ORS) by recoding to a value of (2) and to remove cropped areas that have similar spectral properties to wetland vegetation by coding the pi |
| | The naming format of the files are: Wetland_date _sensor_inundation1_ors2_cloud3.tif or Wetland_path_date _sensor_inundation1_ors2_cloud3.tif |
| | Wetland: bm = Barmah Millewa floodplain gw = Gwydir floodplain lachlan = Lachlan floodplain lo = Lowbidgee floodplain mm = Macquarie Marshes floodplain |
| | Path: Specific to the Lachlan Date: Satellite image date processed Sensor: Sensor type- I7 (Landsat7; I8 (Landsat 8); s2 (Sentinel2) Inundation1: Inundated ors2: Off-River Storage with water cloud3: Cloud shadow (in filename if present) |
| | References: Fisher, A., Flood, N. and Danaher, T. (2016). Comparing Landsat water index methods for automated water classification in eastern Australia. Remote Sensing of Environment, 175, 167-182. |
| | Flood, N., Danaher, T., Gill, T., & Gillingham, S. (2013). An operational scheme for deriving standardised surface reflectance from Landsat TM/ETM+ and SPOT HRG imagery for eastern Australia. Remote Sensing, 5, 83–109. |
| | Thomas, R. F., Kingsford, R. T., Lu, Y., Cox, S. J., Sims, N. C. and Hunter, S. J., (2015). Mapping inundation in the heterogeneous floodplain wetlands of the Macquarie Marshes, using Landsat Thematic Mapper. Journal of Hydrology 524, 194-213. |
| Resource locator | |
| Data Quality Statement | Name: Data Quality Statement |
| | Protocol: WWW:DOWNLOAD-1.0-httpdownload |
| | Description: |
| | Data quality statement for Inundation Maps for NSW Inland Floodplain |
| | Wetlands 2019-2021 |

Function: download

| <u>2019-</u> 2021_basin_plan_reporting | Name: 2019-2021_basin_plan_reporting | |
|---|---|--|
| | Protocol: WWW:DOWNLOAD-1.0-httpdownload | |
| | Function: download | |
| Unique resource identifier | | |
| Code | f393ec22-d873-4304-bf08-c13305779684 | |
| Presentation form | Map digital | |
| Edition | 1 | |
| Dataset language | English | |
| Metadata standard | | |
| Name | ISO 19115 | |
| Edition | 2016 | |
| Dataset URI | https://datasets.seed.nsw.gov.au/dataset/f393ec22-d873-4304-bf08- c13305779684 | |
| Purpose | Inland wetlands and environmental water managment | |
| Status | On going | |
| Spatial representation type | grid | |
| Spatial reference system | | |
| Code identifying the spatial reference system | 4283 | |
| Spatial resolution | 10 m | |
| Topic category | | |

| Keyword set | |
|--|--|
| keyword value | WATER-Wetlands |
| | WATER-Surface |
| Originating controlled vocabulary | |
| Title | ANZLIC Search Words |
| Reference date | 2008-05-16 |
| Geographic location | |
| West bounding longitude | 140.910645 |
| East bounding longitude | 152.819824 |
| North bounding latitude | -36.321211 |
| South bounding latitude | -28.966697 |
| Vertical extent information | |
| Minimum value | -100 |
| Maximum value | 2228 |
| Coordinate reference system | |
| Authority code | urn:ogc:def:cs:EPSG:: |
| Code identifying the coordinate reference system | 5711 |
| Temporal extent | |
| Begin position | 2019-07-01 |
| End position | N/A |
| Dataset reference date | |
| Resource maintenance | |
| Maintenance and update frequency | Unknown |
| Contact info | |
| Contact position | Data Broker |
| Organisation name | NSW Department of Climate Change, Energy, the Environment and Water |
| Telephone number | 131555 |
| Email address | data.broker@environment.nsw.gov.au |
| Web address | https://www.nsw.gov.au/departments-and-agencies/dcceew |
| Responsible party role | pointOfContact |

Lineage Inundation maps are derived from image observations sourced from the satellite data sources of Landsat (30m pixel) and Sentinel-2 (10m pixel) for the period July 2014- June 2019. Image observations are automatically downloaded by NSW DPIE from the USGS (Unites State Geological Survey's Earth Explorer website (http://earthexplorer.usgs.gov) and the Copernicus Sentinel Open Access Hub (https://scihub.copernicus.eu/dhus/#/home) as orthorectified images. NSW DPIE process these images to standardised surface reflectance (Flood et al. 2013). Image observations with high cloud coverage (>50%) are not considered because they cannot be processed. The inundation mapping procedure is a modified version of Thomas et. al (2015) which is a method to map inundation in vegetated floodplain wetlands using an integrated spectral response to water and vigorous vegetation. From each satellite image observation NSW DPIE-EES automatically generates a water index (Fisher et al. 2016) and the NDVI vegetation index. These indices are used to allocate inundated pixels to classes of open water, mixed water and vegetation, and dense vegetation cover that was inundated (Thomas et al. 2015). A process of pixel recoding is conducted to produce each inundation map. First all inundation classes are merged and allocated a value of one (1) whilst all other pixels are allocated a value of zero (0). Second, ancillary data is then used to identify irrigation infrastructure to do two things: locate inundated pixels within off-river storages (ORS) by recoding to a value of (2) and to remove cropped areas that have similar spectral properties to wetland vegetation by coding the pixels to a value of zero (0). Third, for observation dates affected by cloud shadow, which is often incorrectly detected as water, pixels are manually reclassified as cloud shadow by recoding them to a value of three (3). The final inundation classes are inundated (1), offriver storages with water (ors) (2), cloud shadow (3), and not inundated (0). Final inundation maps are clipped to the inland floodplain wetland boundaries.

Limitations on public access

Responsible party

| Contact position | Data Broker |
|------------------------|---|
| Organisation name | NSW Department of Climate Change, Energy, the Environment and Water |
| Telephone number | 131555 |
| Email address | data.broker@environment.nsw.gov.au |
| Web address | https://www.nsw.gov.au/departments-and-agencies/dcceew |
| Responsible party role | pointOfContact |

Metadata point of contact

| Contact position | Data Broker |
|------------------------|---|
| Organisation name | NSW Department of Climate Change, Energy, the Environment and Water |
| Telephone number | 131555 |
| Email address | data.broker@environment.nsw.gov.au |
| Web address | https://www.nsw.gov.au/departments-and-agencies/dcceew |
| Responsible party role | pointOfContact |
| Metadata date | 2024-02-26T12:51:40.909995 |
| Metadata language | |